

Football Physics

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This talk discusses a series of one-minute physics lectures given to the $\sim 8 \times 10^4$ fans that attend the University of Nebraska home football games. The lecture topics range from gyroscopic motion to ionizing collisions between linebackers and I-backs. The problem of simultaneous edification and amusement of the fan in the stands is considered

From the AAAS EurekaAlert! News headlines found on the web...

Since the fall of 1999, Tim Gay, a Professor of Physics at the University of Nebraska - Lincoln, has taught the largest physics class in the world – the 78,000 fans that attend the University of Nebraska Cornhuskers home football games in Memorial Stadium. During a pause in the action, Gay's lessons are shown on the giant television screens at either end of the field. They range in length from forty-five seconds to two minutes, and cover such topics as Newton's Laws of Motion (blocking and tackling), projectile motion (kicking and punting), kinematics (open-field running), and the ideal gas law (why not fill the football with helium to get better hangtime?). Laboratory demonstrations have featured Professor Gay being tackled by 370 pound lineman, pummeled with a sledgehammer as he lies on a bed of nails, and learning the finer points of passing from Heisman Trophy winner Eric Crouch.

Gay's work has been featured on ABC World News Tonight with Peter Jennings, a front page story in the Wall Street Journal, People Magazine, ESPN Magazine, the Boston Globe, the Washington Post, and a variety of other television and radio outlets. In 2001, Gay was retained by NFL Films to write and appear in a series of 5-minute television segments for their show NFL Blast! Blast! is a half-hour program shown in 190 foreign countries to familiarize its audience with the game of American football. The Football Physics segments on the show feature lectures and demonstrations by Gay and interviews with current NFL players. These segments aired starting in 2002, and will run until 2004. It is expected that domestic distribution will follow.

Gay is currently writing a book – The Physics of Football – which is scheduled to be released in the fall of 2004. Its target audience is high school students and football fans of all ages.

The Nebraska segments can be viewed on the Web:
<http://physics.unl.edu/outreach/football.html>